CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1.   (Currently Amended) A data processing apparatus, comprising:

a processing ~~circuit,~~ circuit_ arranged to execute a data producing process and a data consuming process, the data producing process producing a stream of ~~data,~~ data and_ the data consuming process consuming the stream of data concurrently with production of the stream;

processing memory accessible to the data consuming process;

a first-in first-out circular buffer unit for passing data from the stream between the data producing process and the data consuming process, the circular buffer unit comprising buffer ~~memory,~~ memory and ~~the circular buffer unit~~ writing data-items from the stream in a_circular fashion into the buffer memory; and

a consuming process application program_ interface (API) _of the circular buffer unit, the consuming process API being arranged to:

~~arranged to use a grain size selection and~~ access _an auxiliary ~~buffer~~ memory region accessible to the data consuming process, ~~region selection particular for the data consuming process, the consuming process interface being arranged to~~

process a command for making a data grain from the stream available

to the data consuming process, ~~the consuming process interface being~~

~~arranged to~~

respond to the command by testing whether addresses of data within

the grain to which access has to be gained wrap around in the buffer ~~memory;~~

memory,

copy, in response to detection that the addresses wrap around, the

entire grain from the buffer memory to the auxiliary memory region, so that

the wrap around is eliminated in the copied grain~~; and~~, and

~~to~~ return ~~an indication~~ a pointer to the consuming process indicating a

location in the buffer memory from which to read the entire grain ~~from the~~

~~buffer memory~~ when the addresses do not wrap around inside the grain, or

~~an indication~~ a pointer indicating a location of the auxiliary memory region

from which to read the entire grain ~~from the auxiliary memory region,~~ when

the addresses wrap around.

2.   (Canceled)

3.   (Currently Amended)   A data processing apparatus according to claim 1, wherein the consuming process is arranged to select an address of the auxiliary memory and ~~the~~ a grain size as part of the command.

4.   (Original)   A data processing apparatus according to claim 1, wherein the data producing process and the data consuming process are arranged to use a first and second grain size for sending data to and receiving data from the circular buffer unit respectively, the first and second grain size differing from one another.

5.   (Currently Amended)   A data processing apparatus according to ~~claim 5,~~ claim 1, wherein the data producing process is arranged to use variable grain sizes for sending data.

6.   (Currently Amended) A data processing apparatus according to ~~claim 2~~ claim 5, wherein ~~the~~ a first grain size and a size of the circular buffer unit are selected so that addresses of the data in the circular buffer unit always wrap around between successive grains of the first grain size.

7.   (Currently Amended)   A data processing apparatus according to claim 1, ~~containing~~ further comprising:

a further processing memory accessible to a the data producing process for producing the data stream; and

a producing process application program interface (API) of the circular buffer unit, arranged to:

receive a further auxiliary memory region selection for the data producing process, the producing process interface being arranged to

process a further command for outputting an output data grain from the stream, the producing process interface being arranged to

respond to the further command by testing whether addresses of data within the output grain to will wrap around in the buffer memory; memory,

to return an indication a pointer indicating a location in the buffer memory to which to the producing process to writes the entire grain to the buffer memory when the addresses do not wrap around inside the grain, or an indication a pointer indicating a location of the further auxiliary memory region to which the producing process to writes the entire grain to the auxiliary memory region, when the addresses wrap around; around, and

copy, in response to detection that the addresses wrap around, the entire grain from the further auxiliary memory region to the buffer memory so that the wrap around is created in the copied grain.

8.   (Currently Amended) A data processing apparatus, comprising:

a processing circuit arranged to execute a data producing process and a data consuming process, the data producing process producing a stream of ~~data,~~ data and the data consuming process consuming the stream of data concurrently with production of the stream;

processing memory accessible to the data producing process;

a first-in first-out circular buffer unit for passing data from the stream between the data producing process and the data consuming process, the circular buffer unit comprising buffer ~~memory,~~ memory and ~~the circular buffer unit~~ writing data-items from the stream in a circular fashion into the buffer memory; and

a producing process application program interface (API) of the circular buffer unit, the producing process API being arranged to:

~~arranged to use a grain size selection and~~ access an auxiliary ~~buffer~~ memory region accessible to ~~selection particular for~~ the data producing process, ~~the producing process interface being arranged to~~

process a command for making memory available to the data producing process for writing a produced grain, ~~the producing process interface being arranged to~~

respond to the command by testing whether addresses of data within the grain for which memory has to be made available wrap around in the circular buffer ~~memory;~~ memory, and

~~to~~ return ~~an indication~~ a pointer to the producing process indicating a location in the buffer memory to which to write the entire grain ~~to the buffer memory~~ when the addresses do not wrap around inside the grain, or ~~an indication~~ a pointer indicating a location of the auxiliary memory region to which to write the entire grain ~~to auxiliary memory region,~~ when the addresses wrap around.

9.   (Currently Amended)   A machine implemented method for ~~of generating a machine~~ implementation of a signal processing task comprising, ~~wherein the signal processing task comprises~~ concurrently executing processes between which a data stream is communicated via a circular buffer memory, the method comprising:

providing an application program interface (API) that provides for selectable definition of a grain size and an auxiliary memory region, the API including ~~that includes~~ a function to be called by a data consuming one of the processes to gain access to a grain of data stored in the buffer memory, wherein the function is arranged to:

- 7 -

the application program interface providing for selectable definition of a size of the grain and an auxiliary memory region for the data consuming one of the processes,

the function being arranged to test whether addresses of the grain to which access has to be gained wrap around in the buffer memory,

to copy the entire grain from the buffer memory to the auxiliary memory region when the addresses wrap around in the grain, so that the wrap around is eliminated in the copied grain, and

to return, as a result of the call, an indication a pointer to the consuming one of the processes indicating a location in the buffer memory from which to read data from the entire grain from the buffer memory, when the addresses do not wrap around inside the grain, or an indication a pointer indicating a location of the auxiliary memory region from which to read the entire grain from the auxiliary memory region, when the addresses wrap around in the grain;

receiving a specification of the signal processing task;

identifying a call to said function in the specification of the signal processing task; and

implementing the call using the function from the application program interfaceAPI.

10.   (Currently Amended) A machine implemented method according to claim 9, wherein the ~~application program interface~~ API hides a distribution of processes over processing elements from the specification of the processing task, the implementation of the function being selected according to the distribution.

11.   (Currently Amended) A machine implemented method according to claim 10, the method further comprising:

generating integrated circuit manufacturing control information for implementing the machine implementation; and, ~~and~~

manufacturing an integrated circuit under control of the integrated circuit manufacturing control information.

12.   (Currently Amended)   A computer readable medium comprising an application program interface (API) for accessing a circular FIFO buffer, the ~~application program interface~~ API providing for selection of a grain size for an application program that accesses data from the circular FIFO buffer and for definition of an auxiliary memory region for the application program, the ~~application program interface~~ API comprising a function to be called from the

application program for gaining access to a grain from the circular FIFO buffer, the function being arranged to:

test whether addresses of data within the grain to which access has to be gained wrap around in the circular FIFO buffer;

copy the entire grain from the FIFO buffer to an auxiliary memory region when the addresses wraps around inside the grain, so that the wrap around is eliminated in the copied grain; and

return, as a result of the call, ~~an indication~~ a pointer indicating a location in the FIFO buffer from which to read the entire grain ~~from the FIFO buffer~~ when the addresses do not wrap around inside the grain, or a pointer indicating a location of the auxiliary memory region from which to read the entire grain ~~to read from the auxiliary memory region,~~ when the addresses wrap around inside the grain.

13.   (Original) A computer readable medium containing a program of instructions for executing the method of claim 8.